08-26-05 18:39

q: 8/11

SEULBERGER et al.,

Serial No. 09/462,629

PF 0000048141

## AMENDMENTS TO THE SPECIFICATION

Please amend paragraph 6, on page 23 of the specification as followed:

Example 3

Homology comparison of the RVSD36 protein sequence SEQ ID NO: 2

A comparison of the HvSD36 protein sequence with protein sequences in the database revealed homologies to the following protein sequences known to date:

08-26-05 18:39

Please amend paragraph 1, on page 26 of the specification as followed:

| **           | •   | · · · · · · · · · · · · · · |  |   | l .   |                   |
|--------------|---|-----------------------------|--|---|---|-------------------|
| SEQ ID NO: 2 | HPPD_HV  HPPD_Ath  HPPD_HUMAN  HPPD_RAT  HPPD_PIG  HPPD_MOUSE  HPPD_PSESP  MELA_SHECO  PEA3_MOUSE |                             | LFM-SIE-DY<br>LFM-SIE-EY<br>LFM-AFEREQ<br>LFM-AFEREQ<br>LFM-AFEREQ<br>LFM-SIERDQ<br>LFM-SIERDQ<br>LFM-SIERDQ |   | KOLVE<br>HETHGVVPCH<br>TDPHGVPFRL<br>LEPHGVRSCH | 550<br>SELDESPAYL |
|              | HPPD_BV HPPD_Ath HPPD_HUMAN HPPD_RAT HPPD_PIG HPPD_MOUSE HPPD_PSESP MELA_SRECO PEA3_MOUSE         | 7ELTGPAPPP                  |  | ` |   |                   |

Key:

Fax sent by : 2026590105

HPPD\_Hv: Hordeum vulgare 4-hydroxyphenylpyruvate dioxygenase (RvSD36) SEQ ID NO: 2 HPPD\_Ath: Arabidopsis theliene 4-hydroxyphenylpyruvate dioxygenase HPPD\_HUMAH: H.sapiens 4-hydroxyphenylpyruwate dioxygenase HPPD\_PIG: pig 4-hydroxyphanylpyruvate dioxygenase HPPD\_RAT: rat P alloantigen HPPD\_MOUSE: mouse 4-hydroxyphenylpyruwate dioxygenase MELA\_SHECO: S. colvellians mela protein HPPD\_PSESP: Pseudomonas sp. (strain P.J.874) 4-hydroxyphenylpyruvate dioxygenase PEA3\_HOUSE: Mus musculus (mouse) PEA3 polypeptide

The greatest homology was with the Arabidopsis sequence, viz. 58% over the entire sequence (62% over 412 amino acids), followed by HPPD\_RAT with 35% (over 365 amino acids), HPPD\_HUMAN 34% (over 365 amino acids), HPPD\_MOUSE 34% (over 371 amino acids).

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Please amend paragraph 1-5, on page 25 of the specification as followed:

|                     | •              | 266                           |  |                   |              |   |
|---------------------|----------------|-------------------------------|--|-------------------|--------------|---|
| SEO ID NO: 2        | Titlebun, see. |                               |  |                   | 290          | 308                                     |
|                     | HPPD_Hv        | ABATECEREGA                   | THPOA  | VDYGLTRFDE        | VVCHVP-RL    | -APARAYIAG                              |
| t                   | HPPD_Ath       | SEFLPGFERV                    | EDASSTP  | LOTGIRRIDE        | AWTHORN      | -GPALTIVAG                              |
|                     | HPPD_HUNGAN    | GOFLPGYRAP                    | APMOST.T.DET.  | DECCT WHEN        | 71101107070A | -VSASEW-                                |
|                     | HPPD_RAT       | GRPLDCFVAR                    | TTENTE THE   | - MANAGEMENT B    | TACEGREGES   | -VSASSW                                 |
|                     | SPPD PIG       |                               | TANDELLUNK   | SACHTER TON       | IACHÖSDÖRM   | -ESASES-                                |
|                     |                | mortdaggs                     | LLHKLLLSKI,  | PRCGLBIIDE        | IVGROPDOEM   | -25350W                                 |
|                     | EPPO_MOUSE     | AND THE STA                   | TIMUTALPRI   | PROMIBIIDM        | IVENOPOORM   | ~063 CTI                                |
|                     | hppd_psesp     | Idpvfleg                      | VDRHPVGA   |                   | LIENVIRGEM   |   |
| •                   | MELA SHEÇO     | SDFRA                         | LORDITA  |                   | LTHNVHRGIM   | -AEHARF                                 |
|                     | PEA3_MOUSE     | KGYT CEROUS                   |  | DUAL TEANS        | LTHEVERGIM   | -2IMSEL                                 |
|                     |                | MA+TATETIOOA                  | 1. AGEADING HR   | FTSPQGGGRE        | PLPAPYORQL   | SEPCPPYPQQ                              |
|                     |                | •                             |  |                   |              |   |
|                     |                |                               |  |                   |              |   |
| SEQ ID NO: 2        | 27000 m        | 316                           |  |                   | 340          | 350                                     |
| 224 1D NO: 1        | HPPD_Hw        | FT-GFHRE                      | YELLYEDÁGL   | TESCLISVVL        | ARMERGVLLP   | 7.0000000000000000000000000000000000000 |
|                     | HPPO_Ath       | FT-GFHOT                      | ARPEADDOGT   | ARSCHURAUT.       | YREDEMATTS   | TOWNSHIP                                |
| •                   | EPPO_HUMAN     | XLXHLOPHR#                    | WENDOTOURF   | RYSST BOTTON      | ANYESIKOP    | THEFT                                   |
| •                   | HPPD RAT       | YI.ZHI OPRIDE                 | MENDONANT  | Organization A    | WITEEDIAM    | THENATO-XX                              |
|                     | HPPD PIG       | Tiralir commu                 | MOADDIARI  | RISSCREIVY        | ANYEESIRMP   | Indrapg-re                              |
|                     | HPPD_MOUSE     | THEOLOGY BICK                 | MRADDIĞIRI   | EISALDSVVM        | ANYESTING    | IMEPANG-ER                              |
|                     |                | • <del>motifulls</del> critis | MOADALCARE   | BIESTERIOU        | THYERETINE   | TVEDADA_DO                              |
|                     | HPPO_PSESP     | 1 Party Market                | HIFDING  | BYTCLTSEAM        | TAPROTETET   | TWI-TOOPA                               |
|                     | NELA_SHECO     | <b>TEDIFORTBY</b>             | RYF-DING   | SOTALISTAL        | RSPDGSPCIP   | 725                                     |
|                     | PEA3_MOUSE     | MFRO-EYHDP                    | LYBORGODAS   |                   | PGAGVVIROR   | THE CROOK                               |
| •                   | . –            |                               |  | -Aggagagitz       | HANGAATEÖR   | Kidlyideda                              |
|                     |                |                               |  |                   |              |   |
| SEQ ID NO: 2        | :              | 360                           | 370  | 380               |              |   |
|                     | HPPD_HV        |                               |  | 300               | 396          | 400                                     |
| •                   | HPPD_Ath       |                               | PAGE A A CHE-T   | WASSDALKE         | LEKNORARSAM  | ggfdflifffi,                            |
|                     | HPPD HUMAN     | VOÄTÄLITEH                    | NEGROTOH-L   | ALMEEDITRY        | Laborinssi   | <b>GGFDFMPSFP</b>                       |
|                     | ·              | <b>PORTURE ANT</b>            | MCCMCVCH-I   | ALETEDITE         | IDHT.BED     | -27.997 GTP-                            |
|                     | HPPD_RAT       | VORTARIANI                    | DGGMGVUH-I   | ALREDITIVE        | TENT.DED     | -CHEST AND-                             |
| •                   | HPPD_PIG       | KEQIQHYVDY                    | RGGAGVOR-I   | ALKTEDITE         | IRSLEER      |   |
|                     | HPPD_MOUSE     | RSQIQEYVDY                    | NGCACTOR-T   | AT TOPO TOPO      | IRHLRER-     | -GAPLPWAL-                              |
|                     | APPD PERSP     | AGGIERFTAN                    | The rest cot-or  | 327 0000 700      | WORLEST      | -Greekland-                             |
|                     | MELA_SHECO     | RECTREVIAL                    |  | WATER PROPERTY.   | MUNICIPAL    | -GRENELLY                               |
|                     | PEAS MOUSE     | DOCT COME OF                  | Therefold:   | AFRENDIVAS        | LDAMES       | -81qfldiip                              |
|                     | ************   | 1-A-TOWN TOTAL                | Berbararan   | Gancigaes         | LEPPPDDVCI   | VPKKFECDIK                              |
|                     |                | •                             |  |                   |              |   |
|                     |                | 444                           |  |                   |              | •                                       |
| SEQ ID NO: 2        | 5550 To        | 410                           | 420  | 430               | 440          | 450                                     |
|                     | HPPO_RV        | PRITEGVERL                    | AGDVI,SEA  | <b>GIKECOETCA</b> | LVDRDDQG     | VLL                                     |
|                     | RPPD_Ath       | PERSCHERE                     | VGDVLSDD   | ÔIEECERI.GT       | T.VORDOVS    |   |
|                     | HPPD_HUMAN     | STRIKULEE                     | LETAKLEVER   | HIDALARLET        | I.VDVDEEG    |   |
|                     | HPPD_RAT       | SSYYMLL REM                   | LETSKTOVKE   | HODUT.RRIET       | LVDYDEEG-    |   |
| •                   | HPPD PIG       | PTTYKOLORE                    | LEGARTOURE   | STOULENS ST       | TADADERS—    |   |
|                     | HPPD_MOUSE     | SRYVET,T.DWW                  | 7 202 270  | STATISTICAL       | TADIDONG—    | XFF                                     |
|                     | HPPD PSESP     |                               | TOTAL  | SUDALKELEI        | LADADERG     |   |
|                     | MELA_SHECO     | DITIALLEGE                    | LATE HOLD  | Pagrioyici        | LLDG88EBGD   | KRLLL.                                  |
|                     | Mana addition  | P-IIDATAEK                    | TAG-ALE  | Drdrikhhoi :      | LVDGDEDG-    | -TLL                                    |
|                     | PEA3_HOUSE     | <b>GEGIGAPREG</b>             | PPIQR  | -RGALQLHQP        | LVALLDOPIN I | AHFIANTGRG                              |
|                     |                |                               |  |                   |              |   |
|                     |                |                               |  |                   |              |   |
| SEQ ID NO: 2        |                | 460                           | 470  | 48¢               | 490          | 500                                     |
| <u>024 10 10: 2</u> | eppo_rv        | QIFTRPVGDR                    | PTLFLENIOR :   | IGCHENDERG 1      | FEYOUG (     | COCHCECTOR                              |
|                     | HPPD_Ath       | QIFTXFLGDR                    | Prificion 1  | COMMENCE 1        | TA           | COOPERCHE                               |
|                     | HFFD_HUMAN     | QIFTEPVQDR                    | PELFLEVIOR   | (HR)              |              |   |
|                     | HPPD_RAT       | OTPERPHODE                    |  |                   |              |   |
|                     | HPPD_PIG       |                               | Section States of the section of the |                   | -            | Greatest                                |
|                     | HPPD_MOUSE     | QIFTKINODR                    | ETAEMEATON   | :48 <u>0</u> -    |              | GFGACHT                                 |
|                     | HPPD_PSESP     | QIFTEFHQOR 1                  | LIPLICATOR E   | 131 <u>0</u>      |              | crcicor                                 |
|                     | <del> </del>   | OLESET LHGP -                 |  | KGDD              |              | -CPGECHP                                |
|                     | MELA_SHECO     | CIFTKNIFCP .                  | IPIEIIQE -   |                   |              | GPGRGHT                                 |
|                     | PEA3_MOUSE     | neretiedės 4                  | ARLINGIORN B   | PANNYDKIA R       | STRYYYERS T  | MOEVACERY                               |
|                     | ı              | , -                           |  |                   |              |   |

Please amend paragraph 1-5, on page 24 of the specification as followed:

|         | SEQ ID NO: 2                | HPPD HV                    | 10                   |                        |                     | 40               | 50              |
|---------|-----------------------------|----------------------------|----------------------|------------------------|---------------------|------------------|-----------------|
|         | •                           |                            | • • • • • • • • •    | •••••••                | •••••••             | ЖЭ               | PTPTTPAATG      |
|         |                             | HPPD_Ath                   | ********             | *******                | • • • • • • • • • • | MGHORAA          | VSENOWHDDG      |
|         |                             | HPPD_HUMAN                 | *******              | •••••••                | ********            | *******          |                 |
|         |                             | HPPD_RAT                   | *******              | ********               | •••••••             |                  |                 |
|         |                             | HPPD_PIG                   | *******              |                        | *****               |                  | ******          |
|         | •                           | HPPD_MOUSE                 | *******              | *******                | ••••••              | •••••••          | ********        |
|         |                             | HPPD_PSESP                 |                      | ••••••                 |                     | *****            | *******         |
|         |                             | HELA_SHECO                 | ******               |                        |                     | ••••••           | ******          |
|         |                             | PEA3_MOUSE                 | MTKSSNENCL           | LRPEHKPGLW             | GDGRARAGE           | 7071             | *******         |
|         |                             | _                          |                      |                        | or and invertify    | 121VITAA88       | PGRAERPPAA      |
|         |                             |                            |                      |                        |                     |                  |                 |
| •       | 684 TR 114                  |                            | 60                   |                        | 80                  | 90               |                 |
|         | SEQ ID NO: 2                | KPPD_H <b>∀</b>            | <b>AAAAVIPEHA</b>    | RPHRMVREND             | REDRESS OF          |                  | 100             |
|         |                             | HPPD_Ath                   | Alespotaly           | GPSKEVREND             | KADKEKUTE           | MATERIAL MCTON   | ARANGNIAFA      |
|         |                             | HPPD_HUMAN                 | . M                  | TITSDEGARP             | RECEPT.H.           | ABLEF WOODE      | THYARRESHO      |
|         |                             | HPPD_RAT                   | •                    | YWDEGDED               | ERGRFLE-F           | TOATEMACON       | ROALBITCHK      |
|         |                             | HPPD_PIG                   | M                    | TSYSDRIGHT             | EDCERT tr           | PRATEMACHIY      | MONASPYCHK      |
|         |                             | HPPD HOUSE                 | <b>X</b>             | TTYNNKGPEP             | BEGER DE            | PRATERAGES       | ROAASTYCSK      |
|         |                             | Hypd_PSSSP                 | •                    | TTTHNKGPRP             | TAL Asses           | PRAILMACHT       | KOAASFICHE      |
| • .     |                             | MELA SHECO                 |                      |                        | White the           | MGLMGFRFIE       | Laspyphytis     |
|         |                             | PEA3_MOUSE                 | PAOTPGPOVS           | ASARCHCHIA             | PASEQUE V           | LGLLGIEFTS       | Patpolofne      |
| •       |                             |                            |                      | ASARGPGPVA             | GERGIOTEN I         | KGGILDQ          | RVPITECERS      |
|         |                             |                            |                      |                        |                     |                  |                 |
|         | 450 FF                      | •                          | 110                  | 120                    | 130                 | 1.00             |                 |
|         | SEQ ID NO: 2                | HPPD_HV                    | LGAPLAARSD           | LETCHSAHAS             | OT.I.DECST.AP       | 140              | 150             |
|         |                             | HPPD_Ath                   | LGMRFSARSD           | LSTGIBIVEAS            | VI.I.TECHTON        | TEG_APIAN        | G-CDAA          |
|         |                             | HPPD_HUMAN                 | MGFEPLAYRG           | LEIGEREVVE             | HVIECCETUP          | TA 1 WLISE       | H-ITHERSTAN     |
|         |                             | HPPD_RAT                   | MGFEFLAYEG           | LETGEREVVS             | HATEUCETOR          | V449             |                 |
|         |                             | EPPD_PIG                   | IGFEPLAYED           | LETCSREVVS             | HAMACOURTAN         | VIII - CA-       |                 |
|         |                             | HPPD_MOUSE                 | MEFEPLATRE           | LETGSREVVS             | ALLEGERIA           | VE 0             |                 |
|         | •                           | HPPD_PSESP                 | PIFEINGFIR           | VATHRSKDY-             | HT. YDOG LTWY       | 72C              | LINE            |
|         |                             | MELA SHECO                 | KVFIDFGFSK           | LAKHKOKDI-             | MAAR CRUTTURE       | 7710             |                 |
|         |                             | Pers Mouse                 | PGMGSLGRAY.          | MANDEMENDS             | CET.bbeneun         | T TOOL OFFI      |                 |
|         | •                           |                            |                      |                        | annt 2000th         | re derette       | TRLAKAUYPD      |
| •       |                             |                            |                      |                        |                     |                  | •               |
|         | SEQ ID NO: 2                |                            | 160                  | 170                    | - 186               | 190              | 200             |
|         | 101 10 MO. A                | HPPO_HT                    | Tablesps             | <b>ADAARRYSAD</b>      | HGIAVRSVAL          | RVADALEAFR       | ASBREGARPA      |
|         |                             | HPPD_Ath                   | TTTABLESTO           | egecreff88             | BGLGVRAVAI          | EVEDARRAPS       | TAVAMONTOS      |
|         |                             | HPPD_HUMAN                 |                      | XEMODHL-VK             | BCDGVKDIAP          | EVEDCDYTVO       | KADROGANTM      |
|         |                             | HPPO_RAT                   |                      | KENGDHL-VK             | BGDGVEDIAP          | EVENCERTUO       | ELDEDGLETT      |
|         |                             | HPPD_PIG                   | - Will               | XEMEDHY-AX             | BGDCVKDLAP          | EVEDCDTIVO       | PARREGATTY      |
|         |                             | HPPD_HOUSE                 | NEW YEAR             | XENSDEL-VX             | <b>ECOGVEDIAY</b>   | EVEDCDHIVO       | KARREGARTY      |
|         |                             | HPPD_PSESP                 | P                    | HSVASTFAAR             | <b>ECPSVCCMAP</b>   | RVEDSOELVE       | PATERCAMET      |
|         |                             | MELA_SHECO                 | X                    | OCLAYOLY KA            | EGPAISSMON          | EVEDAMPAPE       | GAVADGATDA      |
|         |                             | PEA3_HOUSE                 | SDEQTVPDFH           | Senlape                | SPITRIKEP           | OSPRIOPALS .     | CSKKPYLDYE      |
|         |                             |                            |                      |                        |                     |                  |                 |
|         |                             |                            | 210                  | 776                    | **-                 |                  |                 |
|         | SEQ ID NO: 2                | HPPD By                    |                      | 220                    | ·230                | 240              | 250             |
|         |                             | HPPD_Ath                   | PAPV                 |                        | MATAEVELIC          | DVVLRIVE         | HPDG30          |
|         |                             | HPPD HUMAN                 | SPP1                 | VLAEA                  | ALTERNATE .         | DVVLRYVS         | Traedtek        |
|         |                             | HPPD RAT                   | REP                  | -MATONIA (             | VEPAVLOTTE .        | DITHEILVE I      | D <del>0</del>  |
|         |                             | MPPD_PIG                   | REP                  | TO THE PROPERTY OF THE | VAFAVLQTIG .        | -DITEILVE 1      | KINTT           |
|         |                             | HPPD MOUSE                 | RESUCTION V          |                        | TY                  | -GILVE           | DFFPC           |
|         |                             | HPPD_PSSSP                 | REP                  |                        | VAFAVLOTIO -        | - DITHELVE I     | 12              |
|         |                             |                            | AD                   | THE I                  | ALPAINGIG -         | -GAPLYLID        | efgegsiyd       |
|         |                             | PEA3 HOUSE                 | AD                   | L CA****               | - Didilaria         | -DSLITFID 7      | PGDDNNITT       |
|         |                             |                            |                      |                        | wdaardaas 1         | uregogetier i    | less so se po   |
|         | 1/11 ° RCVD AT 8/26/2005 6. |                            |                      |                        |                     |                  |                 |
| PAGE 1  | 1/11 * RCVD AT 8/26/2005 6  | 36:40 PM (Eastern Davlight | Timel * SVR:USPTO-FF | XRF-6/25 * DNIS-27     | 38300 *_CSID:20265  | 90105 * DURATION | (mm-ss):03-10   |
| i nys I | VII ALTAITAAA A             | A                          | Tanal angan ia.Fi    | INT ALEA MISSAFE       | BECT                | AT PAINTINE      | firmi palian in |
|         |                             |                            |                      |                        | ~_0                 | AVAII A.         | DI -            |
|         |                             |                            |                      |                        |                     | MALAL            | ALE CODY        |
|         |                             |                            |                      |                        |                     |                  | - OOPV          |
|         |                             |                            |                      |                        |                     |                  |                 |